DISCUSSION PAPER
BLACK MESA MINE PERMIT
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This document summarizes Peabody Western Coall Company's (PWCC) views regarding the issuance of a mining permit for the Black Mesa Mine.

History

1964-1966: Coal mining leases signed with thee Navajo and Hopi Tribes which include the right to use water from thee N-aquifer to transport coal.

1970-1972: The Black Mesa and Kayenta Mines begin operation.

1972: Impacts of pumping evaluated as part of Ma o Project EIS. Hopi, Navajo, USGS, and PWCC enter agreement too fund USGS monitoring of N-aquifer.

1982: PWCC obtains a SMCRA "permit" for thee Black Mesa and Kayenta Mines in advance of any regulations specifically requiring such a permit. An analysis of cumulative hydrologic iimpacts (CHIA), including impacts of pumping on the N-aquifer, is done by OSM, based largely on USGS modeling and monitoring.

1984: Permanent Program regulations for Indiann lands promulgated which require PWCC to apply for a permanent programm permit.

1985-1990: OSM prepares another EIS and CHIA con the Black Mesa/Kayenta complex, purportedly pursuant to a settlement agreement between OSM and the Hopi which is subsequently vacated. The EIS and CHIA are unprecedented in their thoroughness and opportunities for public participation and comment. The CHIA ttakes account of more sophisticated USGS modeling developed in 19833 and 1988. The Hopi are consulted numerous times in the design and implementation of the CHIA proocss and their comments are considered andd reconsidered before the final CHIA is issued in April 1989. The CHIA finds no material damage from PWCC well pumpage. No other "existing" operator is subjected to an EIS requirement.

1980-1987: The mining leases are renegotiatted, increasing the coal reserves which PWCC may mine and ship throughn the slurry line, vastly increasing the amo paid the tribes for thee water ($5 vs. $850 per acre-foot) and providing for a study, funded jointly by PWCC and the Tribes, "which shall examine the long-term impacts of the Lessee's water usage on the Navajo aquifer," to be compleated within nine years. Secretary Hodel personally signs renegotiatedd leasee.

May-June 1990: Following completion of the EIS, the Hopi submit additional material directly to the Secretary challenging the CHIA and also lobby the Navajo Nation and EPA to join in expressing concerns over impacts on N-aquifer.

July 1990: OSM defends second CHIA and its conclusions against Hopi challenges and reaffirms CHIA results. Notwithstanding the conclusions reached in the CHIA and the EIS, Secretary Lujan defers action on the Black Mesa permit pending completion of N-aquifer study contemplated under 1987 lease amendments and DOI study of alternative means of transporting coal.

1990-1993: Hopi, Navajo, and PWCC agree on format of N-aquifer study and jointly select S.S. Papadopulos & Associates, Inc. as the independent consultant to conduct the study. Consultant reviews existing data and studies, considers need for additional work, and concludes that the USGS model "provides reasonable and adequate estimates of impacts due to pumping by Peabody on the N-aquifer system." Uncertainties and qualitative improvements are found unlikely to have significant impact on results. DOI consultants complete phased study of coal transportation alternatives which concludes that no alternatives are feasible during remainder of existing coal supply contracts. On the basis of those reports, PWCC requests issuance of the Black Mesa permit.

Current Controversy

It appears, from what PWCC can determine from information provided in large part by the media, that once the independent hydrologic consultant's conclusions were known, the Hopi campaigned to undercut them, reminiscent of their actions in 1985 and in 1990 that resulted in the second EIS and Secretary Lujan's extraordinary deferral of the Black Mesa permit decision, respectively. This campaign has apparently involved, among other things, the ex parte submission to the Secretary of technical documents and briefs attacking the N-aquifer study and conclusions, requests to USGS under a Memorandum of Understanding between the USGS and the Hopi (not disclosed to the other parties) to use the USGS model to predict consequences to the N-aquifer of vastly increased tribal water use, and the selective provision to the press of documents in support of the Hopi arguments with the clear aim of manipulating public opinion.

For its part, the Department of Interior submitted the independent consultant's N-aquifer study, together with the ex parte Hopi materials, to the USGS for evaluation. We do not know why this was done without giving any of the other parties or the independent consultant an opportunity to see, much less respond to, the Hopi criticisms. We also do not know whether this was done with knowledge of the Hopi-USGS Memorandum of Understanding or of the Hopi's actions pursuant to that Memorandum following the independent consultant's study.

These activities have apparently raised questions regarding the USGS N-aquifer model (Alley, October 29, 1993 memorandum to Deason). The key issues raised were: (1) the suitability of the USGS MODFLOW model to predict future effects of withdrawals at specific locations; (2) the significance of leakance from the D-aquifer; and (3) the degree of confidence in the input parameters.

Suitability of USGS Model. Several of the top modeling hydrologists in this country have either modeled the N-aquifer or critically reviewed the work of those that have (USGS, OSM, GeoTrans, and Papadopulos). All have concluded that the model was not flawed and was used properly. The modeling results with regard to the present and future impacts of Peabody's water use on the N-aquifer have been viewed as accurate based on exhaustive reviews of the input data and a variety of sensitivity analyses performed by these parties. Although the model is regional in nature, it is useful in assessing impacts to major springs and baseflow in washes.

Significance of Leakance. When GeoTrans developed its model for PWCC, a higher level of leakance from the D-aquifer was simulated. Their modeling results were very similar to the USGS results. Thus, they concluded that the USGS model may underestimate leakance, but the effect on results was minimal.

Database. The database for the N-aquifer model is considerable and so large as to be rare for regional-scale modeling. The response of water levels to pumpage from PWCC wells and the pumpage rate have been measured and provide an excellent data set to calibrate the model. The model is calibrated using both pumping and non-pumping conditions, resulting in a consistent interpretation of key aquifer characteristics. The model matches observed water levels, suggesting that transient leakance is not very important and that other parameters are accurately estimated.

In summary, the methods used by the USGS were duplicated and verified by others, and were standard procedures appropriate for the purpose of the analysis. Sufficient data exists and was properly used in the modeling analysis. The impact of pumping by PWCC on ground water discharge components such as baseflow in streams and springs was found to be negligible. Sensitivity analyses indicate that the impacts of pumping remain small even when such uncertainty is accounted for. Accordingly, PWCC continues to believe that the conclusions reached by Papadopulos and others are sound. PWCC is troubled by the extraordinary departure from the procedure specified by the Secretary in 1990 and believes that the conditions then established for issuance of the Black Mesa permit have now been satisfied.

In addition to procedural irregularities (e.g., limited peer review, limited timeframe, limited and biased data, etc.), PWCC is disturbed by the USGS's critique of its own generally accepted and widely used model, and wonders what precedents such action will set or break in other contexts where this or similar models are customarily employed.

Peabody is also disturbed by the apparent linkage of its pipeline pumpage and Black Mesa Mine permit to settlement of Hopi and Navajo water rights issues. The Hopi apparently see the Black Mesa pipeline and PWCC's permit as vehicles to gain construction of a new pipeline from Lake Powell with a capacity substantially in excess of the relatively modest amounts used in the slurry pipeline. The known and limited pumpage for the pipeline is being leveraged by the Hopi in order to obtain funding for a water project sufficient to satisfy that Tribe's most ambitious water use projections for the next century (many decades following cessation of pumpage). The Black Mesa permit should not be held hostage to the final resolution of these much more complicated and significant issues.

Recommended Resolution

The studies required by Secretary Lujan in 1990 have now been completed. The conclusions of the N-aquifer study are unambiguous and confirm the results of all previous studies. Issuing the permit is the only course consistent with the scientific data and proper administrative procedure. Deferring to Hopi political concerns would be highly inappropriate.

As a practical matter, the issuance of the Black Mesa permanent program permit will not compromise the protections against adverse impacts from pipeline pumpage contained in the mining leases. The leases provide a "safety net" which underpins all other authorizations to mine and use water. In fact, issuance of the permit will provide a sound structural basis for continuing reviews and monitoring activities. The alleged tie between issuance of the permit and protection of the aquifer is in essence a red herring that the Hopi have found politically expedient.

The Navajo Nation has accepted the conclusions of the independent consultant, has encouraged the completion of the process established in 1990, and has urged the Hopi to address their desire for additional water from Lake Powell directly with them rather than to hold the Black Mesa permit hostage.

In summary, the impacts of pumping on the N-aquifer have received extensive and careful study for nearly a quarter of a century with the consistent conclusion that no material adverse impacts have occurred or are anticipated. These requirements set forth by Secretary Lujan have been satisfied. OSM should act in accord with its own technical studies and standard procedures and issue the Black Mesa permit.